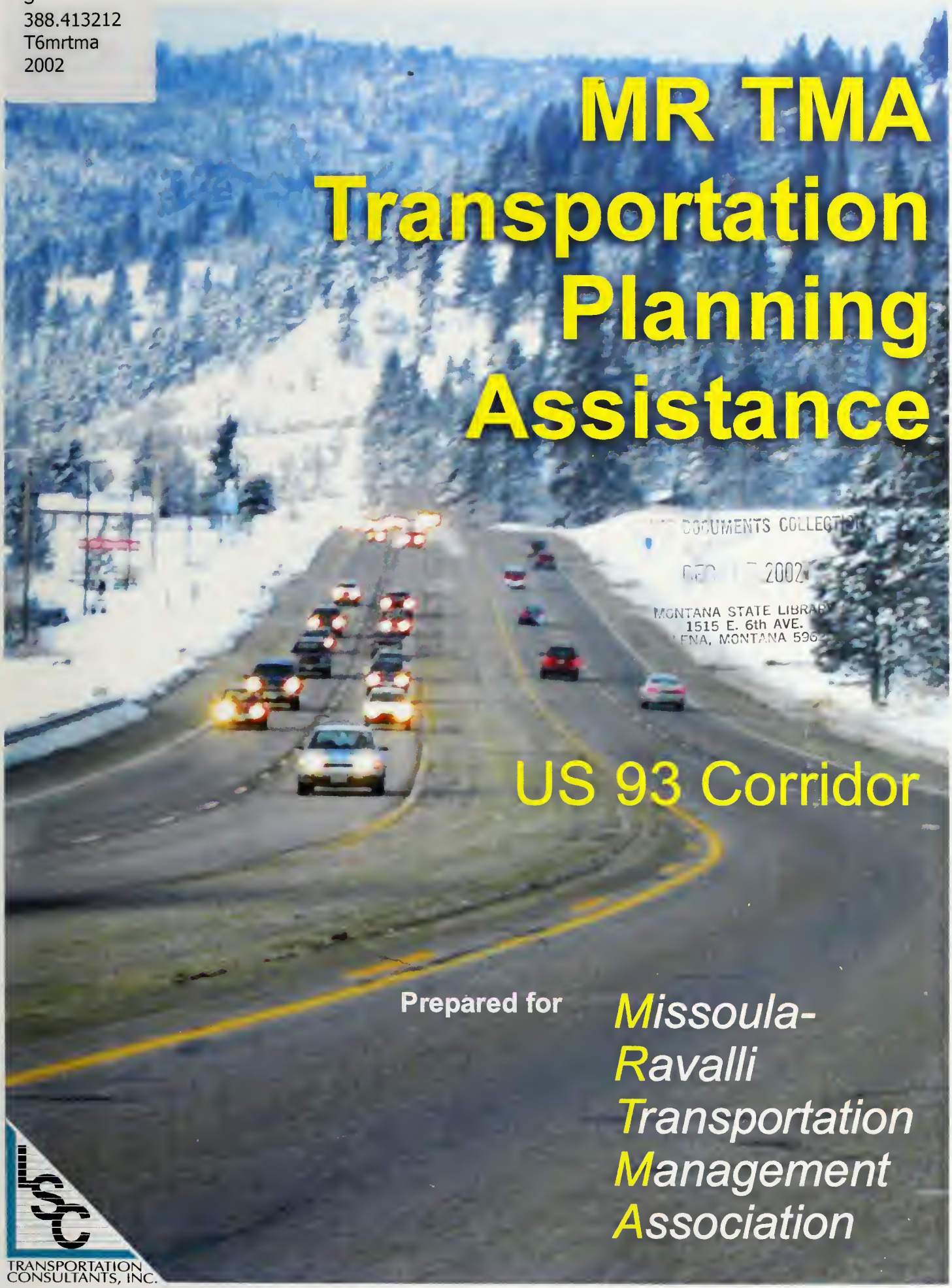
S
388.413212
T6mrtma
2002

MR TMA Transportation Planning Assistance



DOCUMENTS COLLECTION
DEC 2002
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 596

US 93 Corridor

Prepared for

Missoula-Ravalli Transportation Management Association

TSC
TRANSPORTATION CONSULTANTS, INC.

MONTANA STATE LIBRARY
3 0864 1001 6888 2

MR TMA Transportation Planning Assistance

Prepared for:

Missoula Ravalli Transportation Management Association
127 West Spruce
Missoula, MT 59802
(406) 523-4944

Prepared by:

LSC Transportation Consultants, Inc.
101 North Tejon Street, Suite 200
Colorado Springs, CO 80903
(719) 633-2868

LSC #025320

June 26, 2002

Digitized by the Internet Archive
in 2013

http://archive.org/details/mrtmatransportat00lsct

TABLE OF CONTENTS

Chapter	Title	Page
I	INTRODUCTION	I-1
II	GOALS AND OBJECTIVES	II-1
	Introduction	II-1
	Mission	II-1
	Vanpool Participant Input	II-2
	Importance of Vanpool Characteristics	II-2
	Rating of Current Vanpool	II-3
	Importance of Bus Service Characteristics	II-5
	Attractiveness of Bus Service	II-7
	Summary of Survey Results	II-8
	Project Goals	II-8
III	EXISTING SERVICES	III-1
	Missoula Ravalli Transportation Management Association (MR TMA)	III-1
	Park-and-Ride Lots	III-1
	Vanpools	III-3
	Pick-up Locations	III-4
	Destinations	III-4
	Ravalli County Council on Aging	III-7
	Mountain Line	III-7
IV	TRANSIT DEMAND	IV-1
	Introduction	IV-1
	Study Area Demographics	IV-1
	Population Projections	IV-2
	Population Statistics	IV-2
	MR TMA Vanpool Program	IV-4
	Existing Vanpool Participation	IV-4
	Vanpool Waiting List	IV-5
	Summary	IV-5
	Montana Rural Passenger Needs Study	IV-6
	Ravalli County Transit Plan Update	IV-7
	Non-Program Demand	IV-8
	Existing Demand Estimates – 2000	IV-8
	2010 Demand Estimates	IV-9
	Program Trip Demand	IV-9
	Summary of TCRP Methodology	IV-10
	Summary	IV-10
V	SERVICE ALTERNATIVES	V-1
	Introduction	V-1
	Expand Vanpool Service	V-1
	US 93 Commuter Service – Hamilton to Missoula	V-3

VI TRANSIT SERVICE PLAN VI-1
Introduction VI-1
Organizational/Institutional Plan VI-1
Service Plan VI-1
Implementation Steps VI-2
Capital Recommendations VI-3
Vehicles VI-3
Bus Barn VI-3
Financial Plan VI-4
Federal Funding VI-4
Management Recommendations VI-6
Continue Coordination VI-6
Enhance the Marketing Program VI-6
Evaluation VI-7
Monitor Service VI-8

APPENDIX A: Survey Form and Results

APPENDIX B: Trip Rates

LIST OF TABULATIONS

Table	Title	Page
II-1	Importance of Vanpool Characteristics	II-3
II-2	Rating of Current Vanpool Characteristics	II-4
II-3	Importance of Bus Service Characteristics	II-6
II-4	Attributes to Make Bus Service Attractive	II-7
III-1	Park-and-Ride Locations	III-3
III-2	Existing Pick-ups at Park-and-Ride Locations	III-4
IV-1	Population and Projections	IV-2
IV-2	2000 Transit-Dependent Population Estimates by County	IV-3
IV-3	County of Employment by Residence	IV-4
IV-4	1999 Transit Demand Summary (MT Needs Study Methodology)	IV-7
IV-5	Program Participants and Annual Demand Estimates	IV-9
IV-6	2000 Transit Demand Summary (TCRP Methodology)	IV-10
V-1	Existing Vanpool Annual One-Way Trips	V-2
V-2	Expanded Vanpool Annual One-Way Trips	V-2
VI-1	Financial Plan, 2003-2007	VI-5

LIST OF ILLUSTRATIONS

Figure	Title	Page
II-1	Importance and Ranking of Vanpool	II-5
II-2	Importance of Vanpool and Bus Attributes	II-6
III-1	Park-and-Ride Lot Locations	III-2
III-2	Vanpool Destinations	III-5
V-1	Commuter Service Hamilton to Missoula	V-6
IV-1	Vanpool Participant Address	IV-5

Chapter I

CHAPTER I

Introduction

The Missoula-Ravalli Transportation Management Association (MR TMA) was established to provide transportation demand management (TDM) programs in Missoula and Ravalli Counties. The organization got its start when the Montana Department of Transportation was considering alternatives for the US 93 corridor between Hamilton in Ravalli County and Missoula.

As part of the TDM program, MR TMA operates a vanpool program. There are currently seven vanpools in the program, five of which operate from Ravalli County. The program has become very successful. The vans generally operate at capacity, and there is a significant waiting list of people desiring to participate.

As a result of this success, MR TMA is investigating ways to increase the capacity of transportation services in the Bitterroot Valley between Hamilton and Missoula. The options which are being explored are to increase the number of vanpools or to provide commuter bus service. MR TMA contracted with LSC to investigate these options and determine which approach would be cost-effective. This report provides the findings of that analysis. The goals of the study are presented in Chapter II. These goals provided guidance for evaluating the effectiveness of the two options.

As part of the study, LSC investigated the level of demand for transportation services in the corridor. There is sufficient demand to add additional vanpools if funding is available. The feasibility of commuter bus service is a more complex issue. To determine the potential of serving the existing vanpool participants with commuter bus service, a survey was conducted. Vanpool participants were asked to indicate the importance of various characteristics of transportation services. The results are presented in Chapter II.

Chapter III provides a description of the existing service. The vanpool program is described in detail. There are also local transit services in Ravalli County and Missoula which could potentially provide a link to a commuter service in the US 93 corridor. Chapter IV is a summary of the transit demand in the corridor. The best indicator of demand for a commuter bus service is the level of participation in the vanpool program and the number of people on the waiting list.

The two options are evaluated in Chapter V. The potential level of participation and the costs are estimated. Chapter VI provides the recommendations. There is sufficient demand to support one bus. In the future, demand may increase to support a second bus for the commuter service. Because the operating costs of vanpools are relatively low, there must be a significant level of demand for bus service to be cost-effective.

TSC
TRANSPORTATION
CONSULTANTS, INC.

CHAPTER II

Goals and Objectives

INTRODUCTION

In any transportation planning study, it is important to identify the goals and objectives to be accomplished. These are essential in order to evaluate various transportation system options which may be considered. This chapter provides an understanding of the mission of Missoula Ravalli Transportation Management Association (MR TMA) and the goals for transportation services in the Bitterroot Valley between Hamilton and Missoula.

MISSION

The mission of MR TMA was established as part of the Environmental Impact Statement for US 93 between Hamilton and Lolo. The TMA was established as part of the preferred alternative to institute a park-and-ride system and promote traffic reduction measures. As part of this mission, the TMA was to organize rideshare programs, provide public education programs on traffic reduction, and provide support as the program became established and grew. The TMA was also to provide for the implementation of other traffic reduction measures and to encourage the public to consider various traffic reduction measures.

MR TMA has been successful in carrying out the original mission as identified for the US 93 corridor. Programs have expanded beyond the corridor and include a number of transportation demand management activities in the Missoula area. MR TMA provides five vanpools serving the Bitterroot Valley—one vanpool from the west and one vanpool from Highway 93 North. Much of the success of this vanpool program was the result of citizen involvement in the Environmental Impact Statement process. Vanpools were implemented as part of the capacity improvements in the corridor. Other programs include employer-based traffic reduction and cooperative efforts with Mountain Line, the Missoula transit system.

Because of the success of the vanpool program, there is a waiting list of participants. To meet the transportation needs in the corridor, MR TMA is exploring other options to increase capacity and reduce automobile traffic. The success of the various programs has led to a need to expand the transportation options in the US 93 corridor.

VANPOOL PARTICIPANT INPUT

As part of this project, a short survey was conducted of the current MR TMA vanpool participants in the Bitterroot Valley. Vanpool participants were asked a series of questions regarding the importance of various transportation service attributes and how they rate their current vanpool. They were also asked to provide their perception of a bus service. These results provide insight regarding the attitudes of the vanpool participants and what features should be provided in any alternate service in order to have the vanpool participants use the new service.

The questionnaire and results are provided in Appendix A. The analysis of the results is provided in the following paragraphs. A total of 47 questionnaires were distributed to vanpool participants in the Bitterroot Valley. Of these, there were 32 responses for a response rate of 68 percent.

Importance of Vanpool Characteristics

The first question asked vanpool participants to rate the importance of various vanpool characteristics. The responses were on a scale of unimportant, not very important, somewhat important, important, and very important. Each response was given a score with unimportant having a value of 1 and very important having a value of 5. On this scale, an average response of less than 3 would indicate that the attribute is unimportant, and a score of more than 3 would indicate that the attribute is important. A score of more than 4 indicates that the attribute is very important. The responses to this first question are shown in Table II-1.

Table II-1
Importance of Vanpool Characteristics

Attribute	Unimportant	Not Very Important	Somewhat Important	Important	Very Important	Score
Travel time	0	1	0	8	20	4.5
Individuals I ride with	4	5	7	7	9	3.0
Cost	1	0	5	2	24	4.5
Size of vehicle	5	3	8	9	7	3.3
Number of people	9	3	6	7	7	3.0
Schedule reliability	0	1	0	4	27	4.8

Source: LSC, 2002

As can be seen in Table II-1, the most important characteristic is schedule reliability with a score of 4.8. The majority of respondents rated this as being very important. Travel time and cost were also rated as very important by the majority of respondents. These responses indicate that an alternative to the vanpool must be reliable, be provided at a comparable cost, and provide a comparable travel time.

Rating of Current Vanpool

The second question asked vanpool participants to rate their current vanpool based on the same characteristics rated in the first question. The responses are shown in Table II-2. In this case, the rating was poor, fair, good, very good, or excellent. The responses were again given a score from 1 to 5 with poor having a score of 1 and excellent having a score of 5. Scores below 3 would indicate that the current vanpool was fair or poor with respect to that attribute, and scores above 3 would indicate a good to excellent characteristic.

Table II-2
Rating of Current Vanpool Characteristics

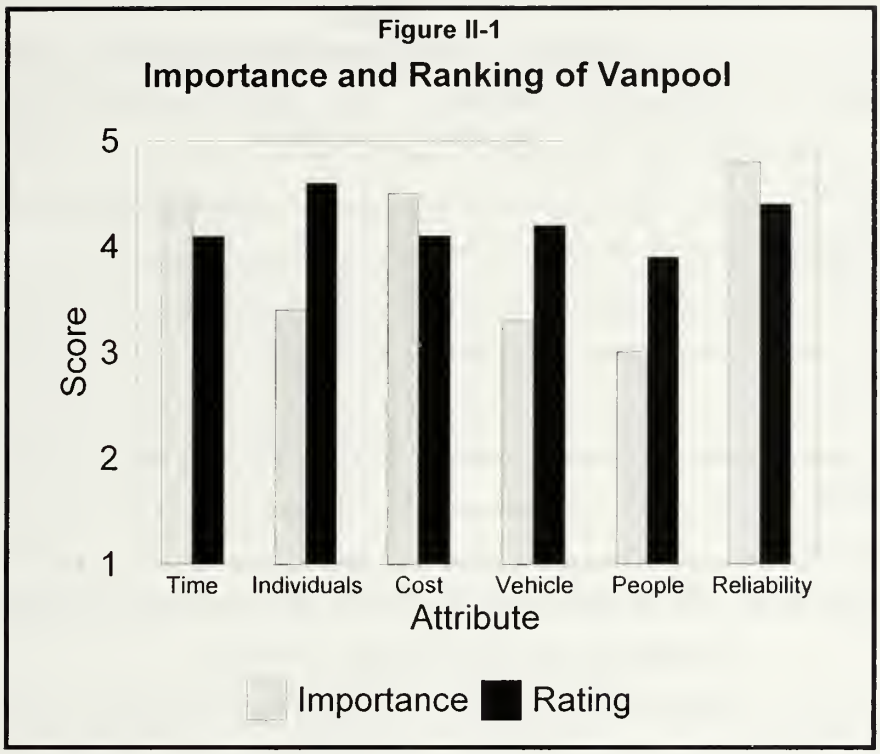
Attribute	Poor	Fair	Good	Very Good	Excellent	Score
Travel time	0	1	6	14	11	4.1
Individuals I ride with	0	0	3	8	21	4.6
Cost	0	1	8	9	14	4.1
Size of vehicle	0	7	7	18	15	4.2
Number of people	0	3	10	6	13	3.9
Schedule reliability	0	0	3	12	17	4.4
Overall satisfaction	0	0	1	13	18	4.5

Source: LSC, 2002

All characteristics had average scores above 3 indicating general satisfaction with the vanpool. Overall satisfaction had a score of 4.5 indicating that participants are very satisfied with the vanpool. The highest score was for the individuals that they ride with which may reflect the relationship that often develops among carpool and vanpool participants. Schedule reliability also scored well. Cost and travel time had slightly lower scores, but still were rated very good or excellent by the majority of respondents.

Figure II-1 shows the comparison of the scores between the importance rating of vanpool characteristics and the ratings of the current vanpool. In this type of comparison, it is useful to look for gaps or disparities between the importance and ranking of individual attributes. Those attributes which are rated as having the highest importance were also ranked high for the existing vanpool. Attributes with lesser importance were also rated highly. Again, this comparison indicates satisfaction with the vanpools and, particularly, satisfaction with those attributes which are considered most important.

Figure II-1



Importance of Bus Service Characteristics

Respondents were asked to indicate the importance of various bus service characteristics. Most of these attributes were the same as those considered for the vanpool service. Responses were again given a score ranging from 1 for unimportant to 5 for very important. The results are shown in Table II-3.

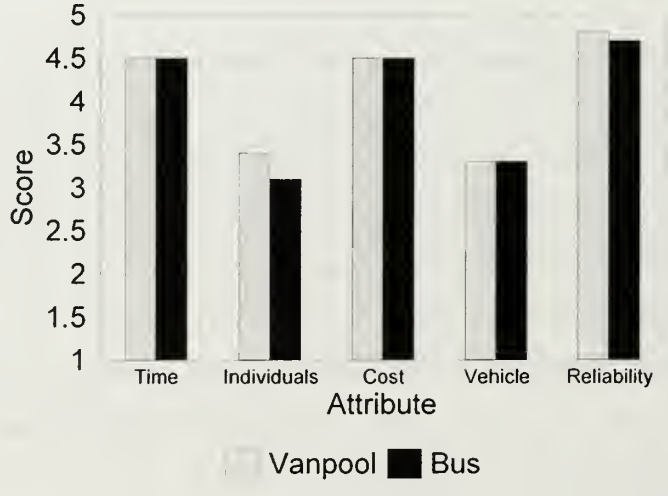
Table II-3
Importance of Bus Service Characteristics

Attribute	Unimportant	Not Very Important	Somewhat Important	Important	Very Important	Score
Travel time	0	0	5	2	23	4.5
Individuals I ride with	5	3	12	7	5	3.1
Cost	0	0	5	4	22	4.5
Size of vehicle	5	1	12	7	6	3.3
Schedule reliability	0	1	4	2	25	4.7
Frequency	0	1	2	3	25	4.7

Source: LSC, 2002

As seen in Table II-3, schedule reliability and frequency of service were rated as most important followed closely by travel time and cost. These attributes compare directly with those rated as most important for vanpool service. The comparison of the importance ranking for attributes of vanpools and bus service are shown in Figure II-2. The ratings of these attributes have no significant difference except for the importance of the other individuals in the vanpool or on the bus. The indi-

Figure II-2
Importance of Vanpool and Bus Attributes



viduals on the bus are less important than the individuals in a vanpool. This reflects the less personal nature of bus service the lower level of relationship among passengers.

Attractiveness of Bus Service

The final question in which passengers were asked to rank attributes was for characteristics of bus service which would be necessary to make the bus service as attractive or more attractive than the vanpool. Respondents were again asked to indicate the importance of the various characteristics in terms of importance. The responses were scored from 1 to 5 with unimportant having a score of 1 and very important having a score of 5. The results are shown in Table II-4.

Table II-4
Attributes to Make Bus Service Attractive

Attribute	Unimportant	Not Very Important	Somewhat Important	Important	Very Important	Score
Travel time	0	1	1	4	26	4.7
Cost	0	0	4	4	22	4.6
Free transfers to Mountain Line	4	1	7	2	15	3.8
Reliable schedule	0	0	0	3	29	4.9
Paid drivers	8	4	5	6	6	2.9
No transfers	0	2	7	3	19	4.3
Morning newspaper	21	5	1	1	1	1.5

Source: LSC, 2002

The responses indicate that bus service must provide the same or better travel time at the same or less cost to the passengers. The schedule must be reliable. Direct service to the destination is important to vanpool participants. It is important to have service without transfers. Free transfers from a commuter service to Mountain Line is not important because it is much more important to have no

transfers. Amenities such as the morning newspaper are not important as a means to make the bus service attractive to current vanpool participants.

Summary of Survey Results

The survey of vanpool participants indicates that these vanpool participants are pleased with their current vanpool. Key attributes of any alternate service, and particularly bus service, to make the alternative attractive include travel time, cost to the passenger, and schedule reliability. In addition to the questions described in the previous paragraphs, participants were asked to indicate those things which would keep them from using the bus if bus service replaced their vanpool. There were 24 responses to this question. The responses again indicate that key factors are the travel time, cost, convenience, and the personal character of vanpools. The primary characteristics which would keep vanpool participants from using bus service are higher cost, more travel time, and the need to make transfers.

The survey responses indicate that it will be very difficult to provide a bus service which is more attractive for vanpool participants. The vanpool participants are very satisfied with the most important attributes of vanpools. Bus service would not be as attractive an option for many of these individuals.

PROJECT GOALS

Several goals have been identified for this planning effort addressing transportation in the US 93 corridor. As options are considered in later chapters, these goals are used to evaluate how well the options will support the mission of MR TMA and the specific goals for the corridor.

1. **Increase capacity for alternate transportation options in the US 93 corridor.**
   a. Provide an increased number of seats between Ravalli County and Missoula.
   b. Provide service to meet the needs of people on waiting lists for the current vanpool service.
2. **Service must be as convenient and attractive as the current vanpool service**.

a. Provide service which will maintain the existing vanpool participants.

b. Travel times should be comparable to the existing travel times.

c. Transportation should be provided between the existing park-and-ride lot locations and current vanpool destinations.

d. Costs to passengers should not increase above the existing cost.

e. Passengers should not have to make more than one transfer.

3. **Sustainable funding must be provided for transportation services in the US 93 corridor.**

a. Funding sources must be identified for capital and operating costs.

b. Funding for operating costs must be available to sustain the service in future years.

TRANSPORTATION
CONSULTANTS, INC.

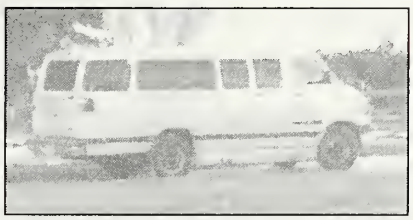
CHAPTER III

Existing Services

Chapter III provides an overview of the existing services offered by MR TMA in the study area. There are other transportation providers within the study area including the Ravalli County Council on Aging and Mountain Line transit in Missoula.

MISSOULA RAVALLI TRANSPORTATION MANAGEMENT ASSOCIATION (MR TMA)

MR TMA is the Transportation Management Association operating out of Missoula for the Missoula, Ravalli, and Lake Counties. MR TMA helps to coordinate car-pooling, ridematching, vanpooling, guaranteed rides home, park-and-ride sites, employee transportation coordinators, school education programs, and more. MR TMA was established to help the citizens of Missoula and Ravalli Counties develop comprehensive transportation alternatives to reduce traffic and parking congestion, protect the environment, and improve the overall quality of life for residents of the three counties.



Park-and-Ride Lots

Currently, MR TMA has commuter vanpools from the Bitterroot Valley, Mission Valley, and from Alberton to Missoula along I-90. MR TMA operates five vanpools from Ravalli County to Missoula, transporting commuters from park-and-ride lots located along US 93 to their place of work. The first park-and-ride lot was established in Hamilton, with many more extending along the US 93 corridor from Hamilton to Missoula. Figure III-1 and Table III-1 show the existing park-and-ride lot locations for MR TMA along the US 93 corridor.

Figure III-1

Park-and-Ride Lot Locations

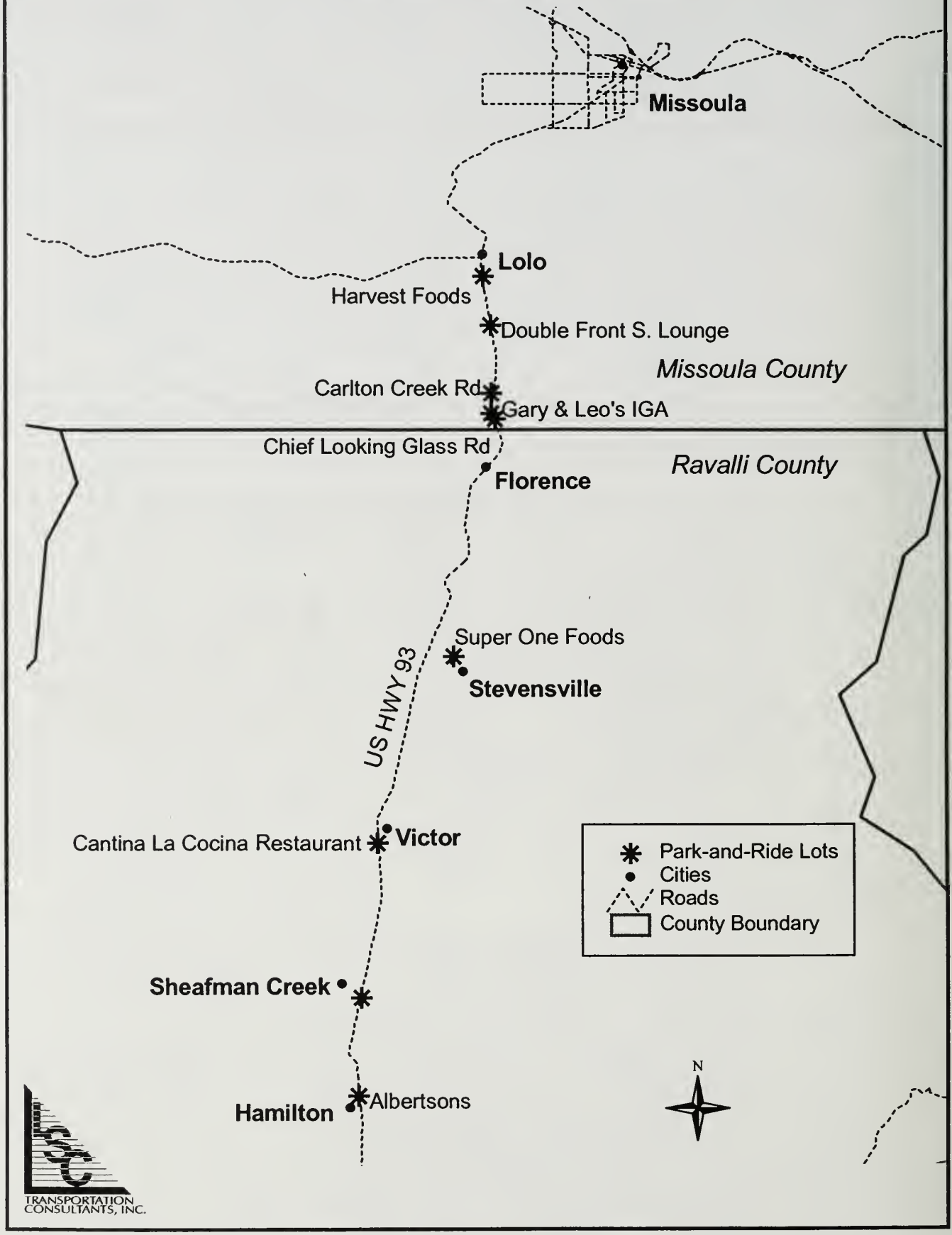


Table III-1
Park-and-Ride Locations

	Park-and-Ride Lots	Address	Location
1	Albertsons Food & Drug	1313 North 1st	Hamilton
2	Sheafman Creek	US Highway 93	North of Hamilton
3	Cantina La Cocina Restaurant	2359 N US Highway 93	Victor
4	Super One Foods	39 Stevensville Cutoff Road	Stevensville
5	Gary & Leo's IGA		Florence
6	Chief Looking Glass Road	Missoula/Ravalli County Line	Florence
7	Carlton Creek Road		North of Florence
8	Across from Double Front South	16366 Old Highway 93	South of Lolo
9	Harvest Foods	Lolo Shopping Center	Lolo

Vanpools

Going hand-in-hand with the park-and-ride lots are the vanpools that travel to each of the locations along US 93. Drivers are volunteer members of the vanpool who, if they drive two or more days per week, ride for free that week. MR TMA operates five vans from Ravalli County. Each van makes a scheduled run from the Bitterroot Valley to Missoula, Monday through Friday, with regular stops at the park-and-ride lots in Hamilton, Victor, Stevensville, Florence, and Lolo. MR TMA has leased two 1998 Dodge 14-passenger vans, two 1999 Dodge 14-passenger vans, and one 2000 Dodge 14-passenger van. These vehicles are currently being replaced with nine 2002 Dodge vans purchased by MR TMA.

One vanpool currently leaves Hamilton for Missoula at 6:30 a.m. from the park-and-ride lot at the Albertsons grocery store and proceeds along US 93 making stops at Stevensville at 6:50 a.m., Florence at 7:00 a.m., Lolo at 7:15 a.m., and proceeding to drop riders off at their destinations in Missoula prior to 8:00 a.m. Another van starts its route at Super 1 grocery store near Stevensville at 6:50 a.m. and proceeds on the same time schedule as the Hamilton van. The other vanpools operate on similar schedules.

Round-trip rates between Missoula and surrounding communities are based on number of days and distance traveled. MR TMA offers a monthly, weekly, or daily fare rate to patrons. As previously mentioned, there are incentives for participants who volunteer to drive two or more days per week.

Pick-up Locations

As mentioned in the previous sections, several sites are available for to be picked up by the vanpools. Table III-2 shows the current ridership at the park-and-ride sites. As shown in the table, the Florence park-and-ride lot has the highest number of vanpool riders, with the Stevensville lot as the second highest.

Table III-2
Existing Pick-ups at Park-and Ride Locations

Park-and-Ride Sites	Riders
Albertsons	2
Arlee	7
Charlo	1
Corvallis	1
Florence	32
Frenchtown	7
Hamilton	5
Huson	3
Lolo	3
Missoula	6
St. Ignatius	2
Stevensville	19
Victor	1
Total Riders	89

Source: MR TMA, 2002.

Destinations

Each MR TMA vanpool travels to a different location. These locations range from the University of Montana to the Smurfit-Stone employment site. Figure III-2 shows the destinations of the current vanpoolers. As shown on the map, the vanpool destinations are dispersed in various areas around the Missoula urban area. The top destinations for the vanpools are the University of Montana, Smurfit-Stone, and the Missoula City Hall/Missoula County Courthouse area.

Figure III-2

Vanpool Destinations

TRANSPORTATION CONSULTANTS, INC.

RAVALLI COUNTY COUNCIL ON AGING

The Ravalli County Council on Aging (RCCOA) is a nonprofit agency dedicated to assisting persons in Ravalli County 60 years of age or older, and qualifying persons with a disability. One of the services provided by RCCOA is transportation, operating as Ravalli County Transit. Ravalli County Transit provides demand-response, door-to-door transit service with a 24-hour advance reservation. Ravalli County Transit operates Monday through Friday from 8:00 a.m. to 4:00 p.m. General public transportation is provided within Ravalli County pursuant to Public Service Commission authority.

The majority of trips occur within Ravalli County, although access to medical facilities and shopping in Missoula is provided. Each Tuesday, Ravalli County Transit offers a Missoula Shopping Special for seniors and persons with disabilities.

MOUNTAIN LINE

The Missoula Urban Transportation District (MUTD) operates public transit service as Mountain Line in the Missoula area. Mountain Line serves areas within the District, including Missoula, East Missoula, Bonner, Target Range, Rattlesnake, and Mullan Road.

Services provided by Mountain Line include 12 fixed routes which have a peak frequency of 30 minutes and off-peak service of 60 minutes. Mountain Line also operates a Downtown Circulator Route and provides complementary paratransit service as required by the Americans with Disabilities Act (ADA). Service is generally provided between 6:00 a.m. and 8:30 p.m. on weekdays and 10:00 a.m. to 6:00 p.m. on Saturdays.

Chapter IV

TRANSPORTATION
CONSULTANTS, INC.

CHAPTER IV

Transit Demand

INTRODUCTION

A key step in evaluating transit service is a careful analysis of the mobility needs of various segments of the population and the potential ridership of transit services. Transit demand analysis is the basic determination of demand for public transportation in a given area. There are several factors that affect demand, not all of which can be forecast. However, as demand estimation is an important task in developing any transportation plan, several methods of estimation have been developed in the transit field. The analysis makes intensive use of demographic data and trends.

This chapter presents an analysis of the demand for transit services in the study area based upon several techniques. The transit demand identified in this section is utilized in evaluation of the various service alternatives. Several methods are used to estimate the maximum transit trip demand within the study area.

- Existing Vanpool Participation
- Montana Rural Transit Needs Study
- Estimates from Ravalli County TDP Update

STUDY AREA DEMOGRAPHICS

The 2000 Census reported 36,070 persons residing in Ravalli County and 91,500 persons for Missoula County. Although portions of the 2000 Census have been released by the block group, data for mobility-limited populations, vehicle information, and below-poverty data have not been released. Therefore, the LSC Team projected these data based on increases in the overall population, using both 1990 and 2000 Census data. Data for Missoula County has been extracted from the Missoula Urban Area Transportation Plan, updated in 1999.

Population Projections

Table IV-1 presents population projections through 2015 for Missoula and Ravalli Counties.

Table IV-1
Population and Projections

	1990	2000	2005	2010	2015
Ravalli County	25,010	36,070	41,320	45,790	50,210
Missoula County	78,687	91,500	97,500	103,300	108,800

Source: Ravalli County Draft TDP Update, 2002; Missoula Urban Area Transportation Plan, 1999.

Population Statistics

Table IV-2 provides other general information on the Missoula and Ravalli Counties' 2000 population. The table provides information on transit-dependent populations for each county. In general, these population characteristics preclude most such individuals from driving, leaving carpooling and public transit as the only other motorized forms of transportation available.

The four types of limitations which preclude persons from driving are: (1) physical limitations, (2) financial limitations, (3) legal limitations, and (4) self-imposed limitations. Physical limitations may include everything from permanent disabilities such as frailty due to age, blindness, paralysis, or developmental disabilities, to temporary disabilities such as acute illnesses and head injuries. Financial limitations essentially include those persons unable to purchase or rent their own vehicle. Legal limitations refer to such limitations as persons who are too young (generally under age 16). Self-imposed limitations refer to those people who choose not to own or drive a vehicle (some or all of the time) for reasons other than those listed in the first three categories.

Table IV-2
2000 Transit-Dependent Population Estimates
by County

Area Description	Land Area (sq.mi.)	Total Population (Persons)	Total Number of Households	Zero-Vehicle Households		Total Number of Youth Aged 0-15		Total Number of Elderly 60 & over		Mobility-Limited Population		Below-Poverty Population	
		#	#	#	%	#	%	#	%	#	%	#	%
Ravalli County	2400.3	36,070	14,289	535	3.7%	7,413	20.6%	7,539	21%	457	1%	5,801	16%
Missoula County		91,500										14,915	16%

Source: 1990 US Census of Population and Housing, 2000 US Census, LSC, 2002.

The census is generally capable of providing information about the first three categories of limitation. The fourth category of limitation is currently recognized as representing a relatively small proportion of transit ridership, particularly in smaller cities and rural areas. Table IV-2 presents the regional census statistics including zero-vehicle households, youth population, elderly population, mobility-limited population, and below-poverty population. These types of data are important to the various methods of demand estimation.

Table IV-3 shows the commute patterns between Ravalli, Missoula, and Flathead Counties. Although the majority of employees work within their county of residence, there is a significant number commuting from Ravalli County to Missoula. The data shown in Table IV-3 are not yet available from the 2000 census. Every indication is the number of people commuting from Ravalli County to Missoula is significantly higher than the data from 1990.

Table IV-3
County of Employment by Residence

County of Residence	County of Employment						
	Ravalli		Missoula		Flathead		
	#	%	#	%	#	%	*Total*
Ravalli	7,123	81%	1,604	18%	20	< 1%	*8,747*
Missoula	263	1%	33,672	99%	28	< 1%	*33,963*
Flathead	20	< 1%	56	< 1%	22,878	100%	*22,954*

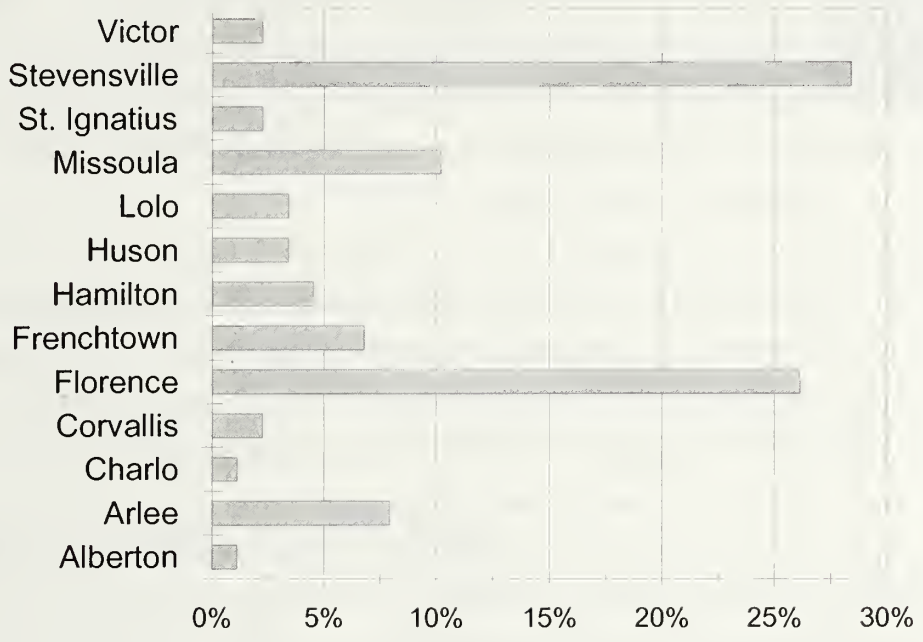
Source: 1990 Census Transportation Planning Package

MR TMA VANPOOL PROGRAM

Existing Vanpool Participation

The MR TMA Vanpool Program currently has seven vanpools in operation. Five of the vans originate in Ravalli County. Approximately 90 vanpool participants are currently using the seven vans in the vanpool program. Figure IV-1, on the following page, shows where the existing vanpool participants live. The majority of participants live in Stevensville, Florence, and Missoula.

Figure IV-1
Vanpool Participant Address



Vanpool Waiting List

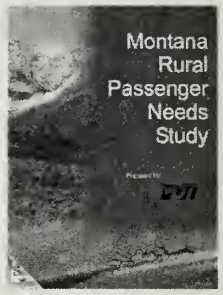
The MR TMA Vanpool Program also maintains a waiting list for future vanpool riders. The current seven vans are full, and the waitlisted persons are notified if any of the riders do not want to continue. Approximately 45 people are on the vanpool waiting list as of April 2002. Hamilton (18 percent), Stevensville (16 percent), and Frenchtown (14 percent) have the highest number of waitlisted persons.

Summary

Using the current information collected at MR TMA, the existing vanpool program is at capacity. Due to funding constraints, the vanpool program has not been able to expand further, even though the demand is evident. In addition to the existing riders, the LSC Team estimates an additional 80 people would use the vanpool service. This is based on the existing number of people on the waiting list and an estimated number that would join with additional marketing in the northern

portion of Ravalli County. These vanpools would generate approximately 41,600 annual trips for service Monday through Friday.

MONTANA RURAL PASSENGER NEEDS STUDY



The Montana Department of Transportation completed a *Rural Passenger Needs Study* for the entire state in March 2001. Transit need estimates were developed for the entire state and on a county-by-county basis.

The unmet need estimates in the *Rural Passenger Needs Study* incorporated needs related to households without transportation, seniors, and persons with disabilities. Program trips for Ravalli County are those transportation needs associated with specific programs for mental health services (such as Head Start, Development Services programs, Senior Nutrition, or Sheltered Workshop programs). The annual transit need estimates for Ravalli County were 282,475 trips for the general public including youth and seniors, 19,710 trips for persons with disabilities, and 79,570 program trips. The 1999 total transit need reported in the *Rural Passenger Needs Study* for Ravalli County is estimated at 381,755 annual trips.

Missoula County had an estimated need of 302,246 annual program trips, 1,603,814 for the general public transit need, and 53,950 for persons with disabilities. The total annual transit need reported for Missoula County was 1,960,010 annual trips.

Table IV-4 presents a summary of the estimated needs using the *Rural Passenger Needs Study* methodology for Missoula and Ravalli Counties. The table indicates that approximately 11 percent of the existing transit need in Ravalli County is being met, with 89 percent of the transit need for the county unmet. Missoula County shows approximately 40 percent of the need met and a 60 percent unmet need.

Table IV-4
1999 Transit Demand Summary
(MT Needs Study Methodology)

County	Disabled	Gen. Public	Program	TOTAL DEMAND	Trips Provided	Unmet Need
Ravalli	19,710	282,475	79,570	381,755	41,000	89%
Missoula	53,950	1,603,814	302,246	1,960,010	775,826	60%

MT Rural Passenger Needs Study and LSC, 2002.

The *Rural Passenger Needs Study* approach used a combination of methodologies and aggregated the need for Missoula and Ravalli Counties. However, the approach used factors based on statewide characteristics and is not specific to rural counties. The *Rural Passenger Needs Study* level of need should be used as a guideline to the level of need and as a comparison for the other methodologies.

RAVALLI COUNTY TRANSIT PLAN UPDATE

The LSC Team is in the final stages of completing the Ravalli County Transportation Development Plan Update. The following transit demand is taken from the Draft Final Report and shows the existing transit demand for the county.

An important source of information and the most recent research regarding demand for transit services in rural areas and for persons who are elderly or disabled is the Transit Cooperative Research Program (TCRP) Project A-3: Rural Transit Demand Estimation Techniques. This study, completed by SG Associates, Inc. and LSC, represents the first substantial research into demand for transit service in rural areas and small communities since the early 1980s.

The TCRP study documents present a series of formulas relating the number of participants in various types of programs in 185 transit agencies across the country. The TCRP analytical technique uses a logit model approach to the estimation of transit demand, similar to that commonly used in urban transportation models. This model incorporates an exponential equation, which relates the quantity of service and the demographics of the area.

This analysis procedure considers transit demand in two major categories:

- "program demand" which is generated by transit ridership to and from specific social service programs, and
- "non-program demand" generated by other mobility needs of elderly persons, persons with disabilities, and the general public, including youth. Examples of non-program trips may include shopping, employment, and medical trips.

Non-Program Demand

As with any other product or service, the demand for transit services is a function of the level of supply provided. To use the TCRP methodology to identify a feasible maximum demand, it is necessary to assume a high supply level, as measured in vehicle-miles per square mile per year. The high supply level is the upper-bound "density" of similar rural services provided in this country. This assessment of demand for the rural areas, therefore, could be considered to be the maximum potential ridership if a high level of rural service were made available throughout all of Ravalli County. The TCRP methodology is based on the permanent population. Therefore, the TCRP methodology is a good demand method to use for Ravalli County.

For Ravalli County, a maximum level of service would be to serve every portion of the county with four round-trips (eight one-way trips) daily, Monday through Friday. This equates to approximately 2,400 vehicle-miles of transit service per square mile per year. This is a very high level of service for rural systems.

Existing Demand Estimates – 2000

Applying this feasible maximum service density to the population of Ravalli County yields the 2000 estimated transit demand for the general population including youth, as well as the elderly and mobility-limited populations. The 2000 Ravalli County potential demand for elderly transit service is 52,000 annual trips; disabled demand is 2,380 annual trips; and general public demand is 29,690 annual trips. The Ravalli County total estimated resident demand for 2000, using the TCRP method, is 84,070 annual trips. This amount would be desired by the elderly, mobility-limited, and general public if a very high level of transit service could be provided. The demand would be concentrated in the larger communities. The general public demand would also include the tourism market segment.

2010 Demand Estimates

Total non-program demand for 2010 is estimated to be 106,120 one-way, annual passenger-trips for Ravalli County. Actual ridership for the most recent fiscal year was approximately 41,000 annual trips, which includes program and non-program trips. Realistically, meeting 100 percent of the demand would not be feasible. However, each community must decide a realistic goal for their area and plan resources accordingly.

Program Trip Demand

The methodology for forecasting demand for program-related trips involves two factors.

- *Determining the number of participants in each program.*
- *Applying a trip rate per participant using TCRP demand methodology.*

The program data available for Ravalli County includes the following programs—Developmentally Disabled, Head Start, Mental Health Services, and Senior Nutrition. The participant numbers were reported by individual agencies. Appendix B presents the TCRP trip rates applied to each of the programs.

The existing program demand estimates are present in Table IV-5. The existing program trip demand, using the participant numbers for each of the programs, is approximately 178,800 annual trips for Ravalli County.

Table IV-5
Program Participants and Annual Demand Estimates

Program	# of Participants	Annual Demand
Developmentally Disabled	200	84,314
Head Start	100	26,300
Mental Health	125	43,375
Senior Nutrition	100	24,800
TOTAL Annual Program Trips		***178,789***

Summary of TCRP Methodology

Combining the program estimates and non-program estimates—the total existing transit demand for the Ravalli County, using the TCRP methodology, is approximately 262,800 annual trips.

84,070 non-program trips + 178,789 program trips =

262,859 TOTAL Annual Transit Demand

Assuming approximately 41,000 annual trips were provided, 16 percent of the need is being met within Ravalli County using this methodology. The existing transit trips include the following agencies: DAV, Montana Medicab, Riverfront, Head Start, Child and Family Services, Discovery Center, Ravalli Services Corporation, and Ravalli County Transit. Table IV-6 summarizes this information.

Table IV-6
2000 Transit Demand Summary
(TCRP Methodology)

Methodology	Elderly/ Disabled	Gen. Public	Program	TOTAL DEMAND	Trips Provided	Unmet Need
TCRP	54,380	29,690	178,789	262,859	41,000	84%

LSC, 2002.

SUMMARY

This chapter presents the methodologies for estimating the demand for public transportation services in Missoula and Ravalli Counties. Several methods are presented for both demand-response and program trips. These models are useful for evaluating various alternatives to meet the needs of the community. Although several of the methodologies provide estimates of transit need for the entire county, the focus of this project is the demand for transportation between Ravalli County and Missoula, particularly within the US 93 corridor. A reasonable estimate of this transit demand is 200 to 250 trips per day. The actual demand will be a function of the quality and quantity of service provided. This information was used by the LSC Team for developing and evaluating the service alternatives presented in Chapter V.

Chapter V

CHAPTER V

Service Alternatives

INTRODUCTION

Chapter V provides an analysis of realistic service alternatives. The service alternatives focus on the US 93 corridor and the best method to provide transportation alternatives for residents of Missoula and Ravalli Counties within this corridor. Capital requirements, financial plans, and management options can then be developed to support the planned services.

EXPAND VANPOOL SERVICE

A good starting point for the evaluation of alternatives is the consideration to expand the existing vanpool service. This alternative would provide three additional vans for the first year and three additional vans in the second year. A major factor in the vanpool expansion would be to also increase the marketing dollars to promote the additional services.

The largest single factor that can be expected to impact Ravalli County over this short-range planning period is growth in the population, aging of the population, growth at the University of Montana, and continued draw of tourists to the area—resulting in an increase in the demand for transit service. The existing vanpool program works well and demand exceeds the existing capacity. The lengthy vanpool waiting list provides immediate evidence of the success of the program. The existing seven vans will ***not be able*** to accommodate additional demand for the future.

The existing MR TMA vanpool program is at capacity. MR TMA currently coordinates with many of the major employers in the Missoula urban area to promote the vanpool service to provide a higher level of service to residents. Continued coordination efforts among the agencies should continue, but will not solve the increasing demand for the US 93 corridor.

A summary of annual trips for the MR TMA vanpool program—assuming no increase in the number of vans—is presented in Table V-1. Because the vanpool program is operating at capacity, the annual number of passenger-trips will remain constant at just over 46,000 trips per year.

Table V-1
Existing Vanpool Annual One-way Trips

Year	Annual Ridership
2000	46,280
2005	46,500
2010	46,500

Source: LSC, 2002.

Expanding the vanpool program to 10 vans, then to 13 vans, would increase the number of annual trips provided by MR TMA. Table V-2 shows the annual trips projected by increasing the number of vans and participants.

Table V-2
Expanded Vanpool Annual One-way Trips

Year	Annual Ridership
2003	66,500
2005	86,000
2010	86,000

Source: LSC, 2002.

The existing operating budget for MR TMA with seven vanpool vehicles is approximately $86,000 annually. The cost per passenger-trip is approximately $1.85. Adding three additional vans would increase the budget to approximately $123,000 annually and expansion to 13 vans would increase the expense to approximately $160,000. The vans would continue to operate as the current system; however, they would be able to accommodate approximately 45 more participants, for a total of approximately 135 vanpool participants. The cost per passenger-trip would remain at about $1.86 in current dollars.

One potential use for the additional vehicles is for the reverse commuter traveling out of Missoula to Ravalli County. The MR TMA vanpool program currently has approximately 20 people on the waiting list for a reverse commute service.

US 93 COMMUTER SERVICE – HAMILTON TO MISSOULA

This alternative would provide commuter service for employees in the morning and evening peak times. The commuter service would provide a lower cost alternative to employees who travel long distances and decrease the commuter traffic volumes between Hamilton and Missoula. Currently, MR TMA operates five vanpools from Ravalli County to Missoula, transporting commuters from park-and-ride lots located along US 93 to their place of work.

This service alternative proposes fixed-route bus service between Hamilton and Missoula, Monday through Friday. The purpose of this alternative includes the following:

- Provide an alternative to the automobile for the growing Ravalli County population and minimize the need for an automobile throughout the Bitterroot Valley.
- Provide additional capacity for commuters than currently offered by the vanpool program.
- Reduce traffic on US 93 through the Valley.
- Reduce parking demand in Missoula.

Challenges of downtown parking.

This service would be operated year-round with stops available at all the major towns and at the nine existing park-and-rides along US 93. The overriding concept behind this alternative is to have general public transit service that benefits each

community and provides residents and visitors an alternative to move easily between the towns.

This alternative could be operated by a fixed-route service. The fixed-route service would include specific locations and times. The potential route is shown in Figure V-1 and travels from Hamilton to Missoula, with stops at major towns. The vehicles can be expected to travel, on average, at a speed of 35 miles per hour, including stops.

The US 93 service would operate in the beginning during the peak commuter hours, focusing on the 7:00 a.m. to 5:00 p.m. hours in Missoula. When the demand is shown, the service could also provide midday service in the future. Three buses would leave Hamilton to Missoula in the morning with 30-minute headways, and three buses would return in the late afternoon to Hamilton, serving the communities in between. The one-way trip from Hamilton will be approximately one hour.

Morning congestion on US 93.

The commuter service would cost a minimum of $40 per hour to provide. The cost estimates discussed below use this base cost:

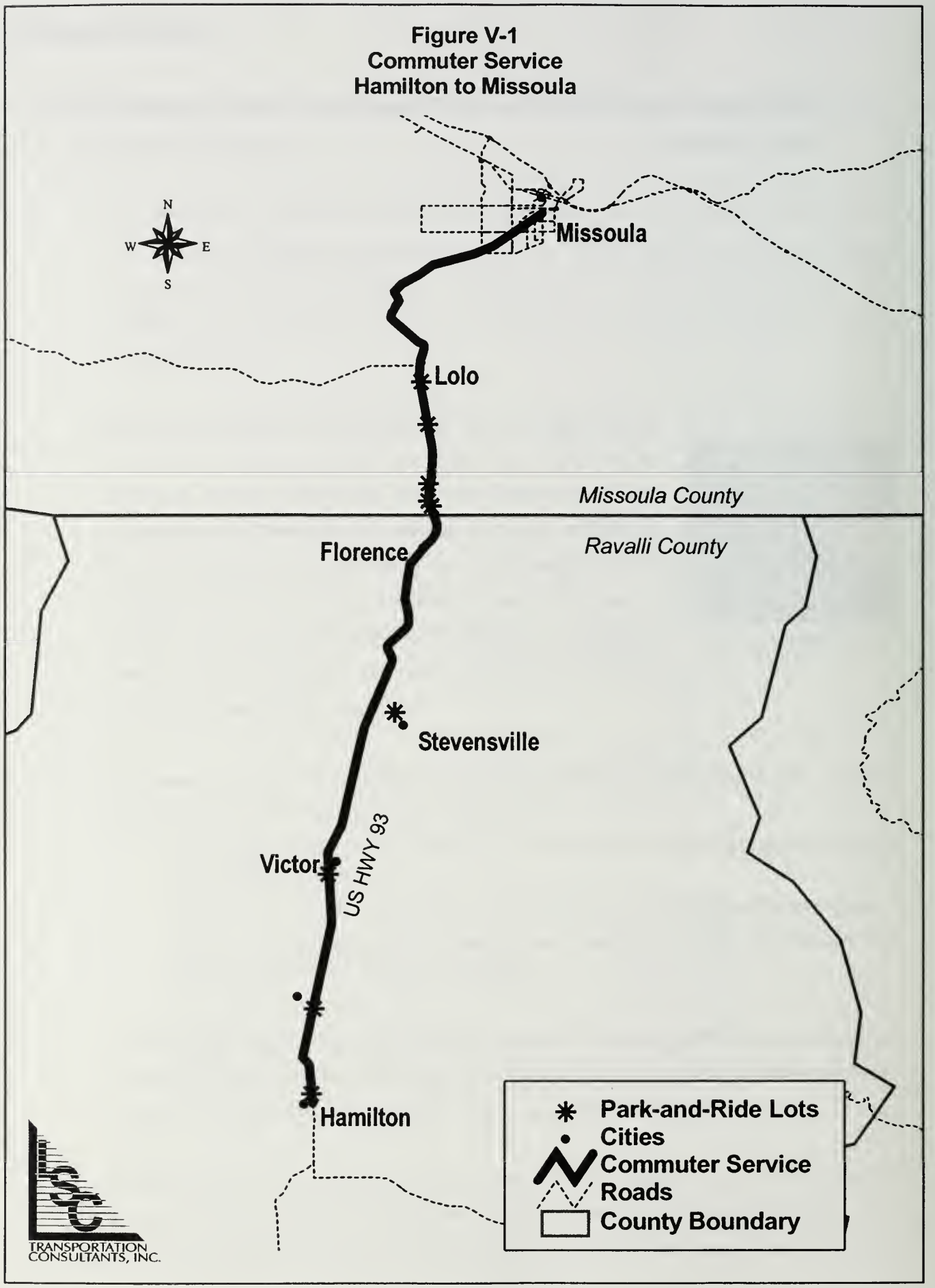
- The total cost for the commuter service with three vehicles is approximately $104,000 annually.
- Estimated annual ridership is approximately 23,000 annual passengers.
- Cost per passenger-trip to operate the commuter service is estimated at approximately $4.44 per passenger.

Three dedicated vehicles would provide this US 93 commuter service. Maintenance and equipment needs for the vehicles could be provided through coordinated maintenance, county shops, or contracted with a local mechanic.

One key component to the fixed-route service is to coordinate transfers with Mountain Line transit system in Missoula. The commuter service would plan to stop at the transfer station at the Southgate Mall, University of Montana, and the Down-

town Transfer Center. Additional schedule analysis will need to be completed if this option is selected.

Figure V-1
Commuter Service
Hamilton to Missoula



Chapter VI

CHAPTER VI

Transit Service Plan

INTRODUCTION

Following the analysis of the alternatives presented in Chapter V, the LSC Team prepared the Transit Service Plan. The Transit Plan identifies steps to be taken for providing service in the US 93 corridor between Hamilton and Missoula.

ORGANIZATIONAL / INSTITUTIONAL PLAN

MR TMA should be the primary provider for the US 93 Commuter Service in the short term. MR TMA has the financial capability to ensure stability of public transportation services in the community. MR TMA is also recognized as the agency which provides transportation-related services in the Bitterroot Valley and in the two counties. To provide the commuter transit service, however, will require approval and operating authority from the Public Services Commission.

Rather than operating the service, it is recommended that MR TMA contract for operation of the commuter service. MR TMA will own the vehicle, but should contract for operations and maintenance of the vehicle.

SERVICE PLAN

The recommendation for service in the Bitterroot Valley between Hamilton and Missoula is to expand the vanpool service and implement commuter service using one bus. A second bus may be added in the future based on the level of demand. The commuter service will provide an alternate mode of transportation for employees in Ravalli County to get to Missoula for jobs.

MR TMA operates a very successful vanpool program. The survey results of the vanpool participants indicate that the participants are very pleased with the service. A bus service does not appear to be an attractive alternative for the vanpool participants. In order to provide a comparable service, the bus passengers must

be able to reach their destination in the same travel time, at the same cost, and without any transfers.

The cost analysis of the vanpool program and a possible bus service indicate that the bus service is much more expensive. The estimated cost per passenger-trip for bus service is more than double the cost per passenger-trip for the vanpool program. Based on this cost analysis, the break-even point is about 40 passengers on a bus. The only current destination which has the potential to attract this level of participation is the University of Montana. There are currently 28 vanpool participants traveling to the University of Montana, with another 28 individuals on the waiting list. The second-highest destination is Smurfit-Stone with 14 vanpool participants, but no individuals on the waiting list. The downtown area has a similar number. Neither of these locations currently have sufficient demand to support bus service to that destination. Smurfit-Stone has the potential for higher levels of demand and may support a bus in the future.

There is sufficient demand to increase the number of vanpools. By providing a bus to the University of Montana campus, two vans will be available for other destinations. The current number of five vanpools should be maintained to provide additional capacity and serve other destinations. This approach will initially provide the equivalent of two new vanpools in the Bitterroot Valley. A third van could be added in the future, although it may be feasible to add a second bus to serve Smurfit-Stone and the Reserve Street corridor.

Implementation Steps

1. MR TMA staff will prepare and finalize the detailed service plan for the US 93 Commuter Service.
2. MR TMA, in coordination with Ravalli County Transit and the Ravalli County TAC, will seek authority with the Public Services Commission to provide intercounty service between Hamilton and Missoula.
3. MR TMA will seek local support from other local transportation providers to promote the commuter service.
4. MR TMA will obtain local funding to support the service.
5. MR TMA will establish any service contracts which may be necessary for the commuter service.

6. MR TMA will develop and implement a program to promote the service prior to implementation.

CAPITAL RECOMMENDATIONS

Vehicles

MR TMA will need to purchase or lease a 40-passenger or larger bus for the US 93 Commuter Service. The vehicles are estimated at approximately $300,000 each. Alternative fuels and hybrid vehicles were considered for this service. However, at this time, alternative fuel vehicles are available for local service and are not being built for over the road transportation. The commuter service will require a bus that operates at highway speeds to serve this corridor.

In addition to the vehicle for the service, a second vehicle must be available for times when the primary vehicle requires maintenance or repair. Rather than purchasing a second vehicle, the recommendation is to establish a contract with a local charter bus company to provide back-up service.

A second vehicle is shown for purchase in 2006 to start service to Smurfit-Stone in 2007. This is based on the assumption that demand will be sufficient by 2007 to support a bus.

Replacement vans will be required for the vanpools. The replacement vans should be comparable to those recently purchased. No new vans are shown in the plan as the new vans will not need to be replaced prior to 2007.

Bus Barn

MR TMA should work directly with Ravalli County Transit as a coordinated effort for their new bus facility, which will be built in the near future. The new facility would provide covered shelter for the buses. MR TMA should seek capital funding to assist in payment for the facility. A realistic portion of the cost for MR TMA would be approximately $50,000.

FINANCIAL PLAN

The following text presents the proposed budget for the next five years. Table VI-1 presents the future 2003 through 2007 expenditures and revenues for MR TMA. The table assumes a three percent inflation rate for operating costs.

Federal Funding

LSC recommends that MR TMA ***continue to apply for federal funding.*** Federal funding is expected to remain relatively stable over the next few years. Such funding should be sought each year to support public transportation services in Missoula and Ravalli Counties. MR TMA should continue to work to augment other revenue sources and to establish new revenue sources. Additional funds may be generated by increasing the number of grant applications sent to agencies and foundations other than Montana DOT or FTA. Grants should be pursued as much as possible.

Table VI-1

Financial Plan, 2003-2007 (assumed 3% inflation)

	2003	2004	2005	2006	2007
EXPENSES					
OPERATING					
Vanpool Service	$ 86,000	$ 89,000	$ 92,000	$ 95,000	$ 98,000
SERVICE CHANGES					
US 93 Commuter Service	$ -	$ 42,000	$ 43,000	$ 44,000	$ 91,000
Marketing Program	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Subtotal	*$ 88,000*	*$ 133,000*	*$ 137,000*	*$ 141,000*	*$ 191,000*
CAPITAL					
Vehicles	$ 300,000			$ 300,000	$ -
Bus Facility	$ 50,000	$ -		$ -	$ -
Subtotal	*$ 350,000*	*$ -*	*$ -*	*$ 300,000*	*$ -*
TOTAL EXPENSES	**$ 438,000**	**$ 133,000**	**$ 137,000**	**$ 441,000**	**$ 191,000**
REVENUES					
Fares / Donations	$ 25,000	$ 35,000	$ 35,000	$ 35,000	$ 38,000
MR TMA	$ 89,000	$ 31,500	$ 33,500	$ 95,500	$ 57,500
FTA Intercity Funds	$ 44,000	$ 66,500	$ 68,500	$ 70,500	$ 95,500
FTA 5309 Program (capital)	$ 280,000	$ -	$ -	$ 240,000	$ -
TOTAL REVENUES	$ 438,000	$ 133,000	$ 137,000	$ 441,000	$ 191,000

Source: LSC, 2002.

MANAGEMENT RECOMMENDATIONS

Continue Coordination

MR TMA should continue to effectively coordinate with the services of Mountain Line and Ravalli County Transit. Although vanpool passengers do not want to transfer to Mountain Line to reach their destinations, a program of free passes on Mountain Line for passengers on the commuter service would be an attractive benefit. This would provide the opportunity for commuter service passengers to reach other destinations in Missoula during the day for business or personal activities.

Enhance the Marketing Program

MR TMA should continue to enhance their marketing program. Short-term marketing efforts should focus on the existing vanpool services and the new US 93 Commuter Service. MR TMA will print and distribute schedules throughout the community.

The second focus of the marketing program is for residents and visitors. The Ravalli County Transportation Directory, recently published by MR TMA, should be introduced and spread around the communities. The directory should be displayed at all the local hotels, Chamber of Commerce, schools, medical offices, major employers, and the grocery stores.

Marketing in the broadest context should be viewed as a management philosophy focusing on identifying and satisfying customers' wants and needs. The basic premises of successful marketing are providing the right product (or service), offering it at the right price, and adequately promoting or communicating the existence and appropriateness of the product or service to potential customers. Unfortunately, for too many persons the word "marketing" is associated only with advertising and promotional efforts that accompany "selling" the product or service to a customer. Instead, such promotional efforts are only a part of an overall marketing process. Without a properly designed and developed product or service offered at the right price, the expenditure of promotional funds is often ill-advised.

The best marketing that can be done is to provide services that people want. Many of the actions discussed in this Short-Range Plan are a part of marketing. Enhancing service is an element of marketing because it provides a desirable service to those who will use it. This is seen in the success of the vanpool program operated by MR TMA. In order to provide good service, it is essential to have information which may be used by management for evaluation of the service and continuous improvement of that service. MR TMA must maintain a customer orientation in every part of the Plan. Several specific promotion activities have been identified which will enhance the overall implementation and marketing efforts.

MR TMA should continue to work with the local newspaper and radio stations to provide periodic human interest stories. Human interest stories can be used to reinforce the benefit of transit service for the communities and county. Examples of good stories would be individuals who are able to work or attend school because of the availability of public transportation. Another example is someone with a disability who is able to make a contribution in the community because of public transportation or who is able to obtain medical treatment because of the coordinated efforts between MR TMA and the social service agencies.

MR TMA should also make use of news advisories for any significant event or accomplishment of any employees. The most cost-effective way to reach large groups of the general population is via the news media. A system should be developed to disseminate news advisories to the media announcing new schedules, routes, fares, services, community involvement activities, outstanding employees, safety record, major management changes, awards, etc. It is important to keep in mind, however, that the media should not be overwhelmed with too much information that is not meaningful and which might otherwise dilute the attention paid to other more important communications.

Evaluation

The most essential, and most often overlooked, element of a marketing plan is an evaluation effort. Evaluations should be performed in terms of the stated marketing objectives. This process should provide the data and procedures by which

the success of the marketing program can be determined. In addition to statistical data (such as ridership) collected over the year, this should include a survey of the general public—establishing the level of public awareness and image regarding the service. This evaluation process is crucial, as it allows future objectives, strategies, and tactics to be refined.

MR TMA should continue the existing marketing efforts and create a transit marketing strategy which includes:

- Continuing the distribution of schedules and posters at major facilities, retail outlets, doctors' offices, social service agencies, lodging facilities, and restaurants.
- Continuing regular radio advertisements that emphasize any current promotions that are underway.
- Continuing advertisements in the newspaper and emphasizing the same promotions as radio announcements.
- Continuing to make presentations at key community organizations.

Monitor Service

LSC recommends that MR TMA continue to monitor service performance measures for the vanpools and for the new commuter service. These service performance measures will track service quality and performance. A monitoring program is essential to determine the efficiency and effectiveness of the service that is being provided. Monthly reports should continue to be prepared by MR TMA and presented to the Board. Information in these reports should include productivity and costs.

Productivity measures for the transit service should be reported monthly, indicating the number of passengers per revenue-hour and passengers per revenue-mile. The actual productivity should be compared with system standards.

In order to monitor productivity, it is essential that passenger ridership data continue to be collected on an ongoing basis. The simplest approach for collecting the ridership data is to equip each bus with manual counting devices that allow the drivers to register each passenger who boards by the appropriate fare category.

These data should then be entered into a spreadsheet or database for analysis and presentation to the Board.

Cost information should also be reported monthly by the Director and the Board. The average net cost per passenger should be reported, along with total cost per passenger and ridership. The Board can then determine the policy direction which will be taken and recommend appropriate funding decisions for local political officials. The monthly reports should be prepared in a spreadsheet format for continuing analysis of monthly data and trends.

Appendix A: Survey Form and Results

TRANSPORTATION
CONSULTANTS, INC.

MISSOULA RAVALLI TMA VANPOOL RIDER SURVEY

MR TMA is considering the possibility of starting bus service between Hamilton and Missoula. The high demand and waiting list for vanpool participants indicates a greater need than we are currently meeting. We would like to know your thoughts regarding a possible bus service to replace the vanpools at some point in the future. Your input will be very important as we consider this possibility. Thank you for providing your comments.

Please rate the following characteristics of your vanpool in terms of their importance to you:

	Unimportant		Somewhat Important		Very Important
Travel time	☐	☐	☐	☐	☐
The individuals I ride with	☐	☐	☐	☐	☐
Cost	☐	☐	☐	☐	☐
Size of the vehicle	☐	☐	☐	☐	☐
Number of people in the vanpool	☐	☐	☐	☐	☐
Schedule reliability	☐	☐	☐	☐	☐

How would you rate your current vanpool?	**Poor**	**Fair**	**Good**	**Very Good**	**Excellent**
Travel time	☐	☐	☐	☐	☐
The individuals I ride with	☐	☐	☐	☐	☐
Cost	☐	☐	☐	☐	☐
Size of the vehicle	☐	☐	☐	☐	☐
Number of people in the vanpool	☐	☐	☐	☐	☐
Schedule reliability	☐	☐	☐	☐	☐
Overall satisfaction	☐	☐	☐	☐	☐

If regular bus service was provided between Hamilton and Missoula, how would you categorize the importance of the following?	**Unimportant**		**Somewhat Important**		**Very Important**
Travel time	☐	☐	☐	☐	☐
The individuals I ride with	☐	☐	☐	☐	☐
Cost	☐	☐	☐	☐	☐
Size of the vehicle	☐	☐	☐	☐	☐
Schedule reliability	☐	☐	☐	☐	☐
Frequency of schedule	☐	☐	☐	☐	☐

What would the bus service have to offer to make it as attractive or more attractive than your vanpool?	**Unimportant**		**Somewhat Important**		**Very Important**
Same or better travel time	☐	☐	☐	☐	☐
Same cost	☐	☐	☐	☐	☐
Free transfers to Mountain Line	☐	☐	☐	☐	☐
Reliable schedule	☐	☐	☐	☐	☐
Paid drivers	☐	☐	☐	☐	☐
No transfers to reach destination in Missoula	☐	☐	☐	☐	☐
Morning newspaper	☐	☐	☐	☐	☐

If bus service replaced your vanpool, would anything keep you from using the bus?

Other comments (use back of this page if necessary):

Q1 1. Please rate the following characteristics of your vanpool in terms of their importance to you: 1a. Travel time:
Unimportant 0 (0%) Not Very Important 1 (3%) Somewhat Important 3 (9%)
Important 8 (25%) Very Important 20 (62%)
Total 32 Average = 4.5

Q2 1b. The individuals I ride with:
Unimportant 4 (12%) Not Very Important 5 (16%) Somewhat Important 7 (22%) Important 7 (22%) Very Important 9 (28%)
Total 32 Average = 3.4

Q3 1c. Cost:
Unimportant 1 (3%) Not Very Important 0 (0%) Somewhat Important 5 (16%)
Important 2 (6%) Very Important 24 (75%)
Total 32 Average = 4.5

Q4 1d. Size of the vehicle:
Unimportant 5 (16%) Not Very Important 3 (9%) Somewhat Important 8 (25%)
Important 9 (28%) Very Important 7 (22%)
Total 32 Average = 3.3

Q5 1e. Number of people in the vanpool:
Unimportant 9 (28%) Not Very Important 3 (9%) Somewhat Important 6 (19%)
Important 7 (22%) Very Important 7 (22%)
Total 32 Average = 3.0

Q6 1f. Schedule reliability:
Unimportant 0 (0%) Not Very Important 1 (3%) Somewhat Important 0 (0%)
Important 4 (12%) Very Important 27 (84%)
Total 32 Average = 4.8

Q7 2. How would you rate your current vanpool? 2a. Travel time:
Poor 0 (0%) Fair 1 (3%) Good 6 (19%) Very Good 14 (44%) Excellent 11 (34%)
Total 32 Average = 4.1

Q8 2b. The individuals I ride with:
Poor 0 (0%) Fair 0 (0%) Good 3 (9%) Very Good 8 (25%) Excellent 21 (66%)
Total 32 Average = 4.6

Q9 2c. Cost:
Poor 0 (0%) Fair 1 (3%) Good 8 (25%) Very Good 9 (28%) Excellent 14 (44%)
Total 32 Average = 4.1

Q10 2d. Size of the vehicle:
Poor 0 (0%) Fair 0 (0%) Good 7 (22%) Very Good 10 (31%) Excellent 15 (47%)
Total 32 Average = 4.2

Q11 2e. Number of people in the vanpool:
Poor 0 (0%) Fair 3 (9%) Good 10 (31%) Very Good 6 (19%) Excellent 13 (41%)
Total 32 Average = 3.9

Q12 2f. Schedule reliability:
Poor 0 (0%) Fair 0 (0%) Good 3 (9%) Very Good 12 (38%) Excellent 17 (53%)
Total 32 Average = 4.4

Q13 2g. Overall satisfaction:
Poor 0 (0%) Fair 0 (0%) Good 1 (3%) Very Good 13 (41%) Excellent 18 (56%)
Total 32 Average = 4.5

Q14 3. If regular bus service was provided between Hamilton and Missoula, how would you categorize the importance of the following? 3a. Travel time:
Unimportant 0 (0%) Not Very Important 0 (0%) Somewhat Important 6 (19%)
Important 2 (6%) Very Important 23 (74%)
Total 31 Average = 4.5

Q15 3b. The individuals I ride with:
Unimportant 6 (19%) Not Very Important 3 (10%) Somewhat Important 10 (32%) Important 7 (23%) Very Important 5 (16%)
Total 31 Average = 3.1

Q16 3c. Cost:
Unimportant 0 (0%) Not Very Important 0 (0%) Somewhat Important 5 (16%)
Important 4 (13%) Very Important 22 (71%)
Total 31 Average = 4.5

Q17 3d. Size of the vehicle:
Unimportant 5 (16%) Not Very Important 1 (3%) Somewhat Important 12 (39%)
Important 7 (23%) Very Important 6 (19%)
Total 31 Average = 3.3

Q18 3e. Schedule reliability:
Unimportant 0 (0%) Not Very Important 0 (0%) Somewhat Important 4 (13%)
Important 2 (6%) Very Important 25 (81%)
Total 31 Average = 4.7

Q19 3f. Frequency of schedule:
Unimportant 0 (0%) Not Very Important 1 (3%) Somewhat Important 2 (6%)
Important 3 (10%) Very Important 25 (81%)
Total 31 Average = 4.7

Q20 4a. What would the bus service have to offer to make it as attractiver or more attractive than your vanpool? 4a. Same or better travel time:
Unimportant 0 (0%) Not Very Important 1 (3%) Somewhat Important 1 (3%)
Important 4 (12%) Very Important 26 (81%)
Total 32 Average = 4.7

Q21 4b. Same cost:
Unimportant 0 (0%) Not Very Important 0 (0%) Somewhat Important 4 (13%)
Important 4 (13%) Very Important 22 (73%)
Total 30 Average = 4.6

Q22 4c. Free transfers to Mountain Line:
Unimportant 4 (14%) Not Very Important 1 (3%) Somewhat Important 7 (24%)
Important 2 (7%) Very Important 15 (52%)
Total 29 Average = 3.8

Q23 4d. Reliable schedule:
Unimportant 0 (0%) Not Very Important 0 (0%) Somewhat Important 0 (0%)
Important 3 (9%) Very Important 29 (91%)
Total 32 Average = 4.9

Q24 4e. Paid drivers:
Unimportant 8 (28%) Not Very Important 4 (14%) Somewhat Important 5 (17%) Important 6 (21%) Very Important 6 (21%)
Total 29 Average = 2.9

Q25 4f. No transfers to reach destination in Missoula:
Unimportant 0 (0%) Not Very Important 2 (6%) Somewhat Important 7 (23%)
Important 3 (10%) Very Important 19 (61%)
Total 31 Average = 4.3

Q26 4g. Morning newspaper:
Unimportant 21 (72%) Not Very Important 5 (17%) Somewhat Important 1 (3%)
Important 1 (3%) Very Important 1 (3%)
Total 29 Average = 1.5

Q27 5. If bus service replaced your vanpool, would anything keep you from using the bus? (Indicate if respondent replied to question.)
Yes 24 (75%) No 8 (25%)
Total 32

Q28 6. Indicate if respondent made other comments.
Yes 14 (44%) No 18 (56%)
Total 32

Appendix B: Trip Rates

TRANSPORTATION
CONSULTANTS, INC.

TABLE 1

Recommended Methodology for Estimating Annual Program-Related Rural Passenger Transportation Demand
(From TCRP Report 3)

D= Annual One-Way Person-Trips

Program Type

Developmental Services: Adult

Participants < 25; D = 358 x Number of Participants

Participants > = 25; D = 430 x Number of Participants - 1,686

Developmental Services: Case Management

D = 39.2 x Number of Participants

Developmental Services: Pre-School

D = 224 x Number of Participants

Group Home

Participants < 10; D = 2.05 x Number of Participants x Days of Operation
or, if the number of days of operation is not known,
D = 615 x Number of Participants

Participants > = 10; D = (1.42 x number of Participants + 5.94) x Days of Operation
or, if the number of days of operation is not known,
D = 291 x Number of Participants + 3,760

Headstart

D = 263 x Number of Participants

Headstart: Home Base

D = 0.16 x Number of Participants x Days of Operation
or, if the number of days of operation is not known,
D = 30.5 x Number of Participants

TABLE 1

Recommended Methodology for Estimating Annual Program-Related Rural Passenger Transportation Demand
(from TRCP Report 3)

Program Type	D = Annual One-Way Person-Trips
Headstart: Other	D = 1.86 x Number of Participants
Job Training	D = 137 x Number of Participants
Mental Health Services	D = 347 x Number of Participants
Mental Health Services: Case Management	D = 6.35 x Number of Participants
Nursing Home	
Participants < 50;	D = 9.10 x Number of Participants
Participants > = 50;	D = 12.5 x Number of Participants - 173
Senior Nutrition	D = 248 x Number of Participants
Shelter Workshop	D = 1.58 x Number of Participants x Days of Operation or, if the number of days of operation is not known, D = 384 x Number of Participants

TABLE 2

Recommended Methodology for Estimating Annual Non-Program-Related Rural Passenger Transportation Demand
(from TRCP Report 3)

$$D = R_e E\left(\frac{1}{1 + k_e e^{-U_e}}\right) + R_m M\left(\frac{1}{1 + k_m e^{-U_m}}\right) + R_p P\left(\frac{1}{1 + k_p e^{-U_p}}\right)$$

where:

D = annual demand for Non-Program-Related passenger transportation.
(One-Way Trips Per Year)

R_e = 1,200

R_m = 1,200

R_p = 1,200

E = number of persons age sixty or over.

M = number of mobility-limited persons age sixteen to sixty-four.

P = number of persons, age sixty-four or less, in families with incomes below the poverty level. The definition of the poverty level is that used for the 1990 U.S. Census.

$k_e = e^{6.38}$

$k_m = e^{6.41}$

$k_p = e^{6.63}$

U_e = 0.000510 x $\frac{\text{Annual Vehicle-Miles Available to Elderly Market}}{\text{Area of the County}}$

U_m = 0.000400 x $\frac{\text{Annual Vehicle-Miles Available to Mobility-Limited Market}}{\text{Area of the County}}$

U_p = 0.000490 x $\frac{\text{Annual Vehicle-Miles Available to Low-Income Market}}{\text{Area of the County}}$